

CODA DIVERSITY IN MEDITERRANEAN SPERM WHALES

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Research in the Pacific indicates sperm whale groups can be assigned to vocal clans based on their coda production. However, vocal variation at the group level has been little investigated in other locations. Here we looked at coda repertoires from Mediterranean sperm whales, that occupy a much more restricted, 'island' habitat relative to the Pacific population; the population size is also likely much lower. In birds, island populations have been shown generally to have vocal repertoires that contain fewer elements but have more variety within elements. We recorded coda repertoires from sperm whale social groups in three locations - the Balearic Islands, Ischia Island off Italy and along the Hellenic Trench off Greece. Several previous studies have reported regional repertoires dominated by a 3+1 type, and this is what we found in all cases in the Western Mediterranean. Four click codas dominated the coda repertoires in all three areas. However, some groups recorded in the Eastern basin made a different coda type. Although having a similar structure of three clicks followed by a longer pause, this type was shorter in length and more compressed in the first two intervals relative to the third. These codas were distinct enough to be statistically recognised as a separate coda type, 3++1. Dendrograms of repertoire similarity showed a deep split between groups that made the different coda types. However, all recorded repertoires were more similar than the mean between-clan similarity in Pacific studies and bootstrap support for the split was low, so unequivocal evidence for clan structure similar to that found in the Pacific was absent. Therefore patterns of diversity mirrored those found in birds, with reduced clan level diversity but more variation within coda types of the same general structure, indicating that similar processes of cultural evolution may be occurring.